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AUTHOR Hativa, Nira; Barak, Rachel; Simhi, Etty
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ABSTRACT

This study of exemplary university teachers sought to identify their thinking and knowledge about effective teaching dimensions and strategies, the effective strategies that they actually used in class, and the relationships between their thinking and knowledge about effective teaching strategies and their actual use of these strategies. Two instructors in each of two departments (literature and psychology) at a research university in Israel were interviewed, videotaped in class, and rated by their students as to their high- and low-inference behaviors. All instructors showed that they knew many effective teaching strategies, though there was a significant number of strategies that they used without being aware of it, and there were a few strategies that they knew of but did not use in class. Findings suggest that the main dimension of clarity and a small set of strategies are essential for effective teaching, but beyond this set, high performance on either organization or interest/engagement is not a necessary condition for excellent teaching, and each teacher achieves his/her excellence in a different way using different effective teaching dimensions and strategies. (Contains 39 references.) (Author/SM)

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EXPERT UNIVERSITY TEACHERS: THINKING, KNOWLEDGE AND PRACTICE REGARDING EFFECTIVE TEACHING BEHAVIORS

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Nira Hativa, Rachel Barak, Etty Simhi
Tel Aviv University

Paper presented at the annual meeting of the American Educational Research Association, Montreal, April 1999.

Prof. Nira Hativa, School of Education, Tel Aviv University, Tel Aviv 69978, Israel

Email: nira@post.tau.ac.il
Fax: 972-3-640-9477

ABSTRACT

This study of four cases of exemplary university teachers looked to identify their thinking and knowledge about effective teaching dimensions and strategies, the effective strategies that they actually use in class, and the relationships between their thinking and knowledge about effective teaching strategies, and their actual use of these strategies. Two instructors in each of two departments: literature and psychology, at a research university in Israel, were interviewed, videotaped in class, and a list of their high- and low-inference behaviors were rated by students on a special questionnaire. All instructors show to know many of effective teaching strategies, but there is a sound number of strategies which they use without being aware of, and there are a few strategies which they know of but do not use in class. Findings suggest that the main dimension of clarity and a small set of strategies are essential for effective teaching but beyond this set, high performance on either organization or interest/engagement is not a necessary condition for excellent teaching and each teacher achieves his/her excellence in a different way, using different effective teaching dimensions and strategies.

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RATIONALE AND THEORETICAL FRAMEWORK

The quest for excellence in college and university teaching is now a worldwide concern. Universities pay increasing attention to the quality of the pedagogy practiced in their classrooms and to assessing how effectively professors are teaching (Ovando, 1989). At the same time, educators and researchers are looking for ways to increase knowledge about teaching effectiveness. A good way to achieve this goal is to learn from outstanding/successful teachers about the ways they think about teaching, their pedagogical knowledge, and their classroom instructional behaviors, in order to convey all these to less successful teachers.

Instructors' Thinking and Knowledge About Instruction

We refer in this article to both teacher thinking and knowledge because distinctly separating these two notions is difficult, if not infeasible (Clark & Peterson, 1986). The notion "Teacher thinking" includes also teachers' perceptions and beliefs. The need to learn about teachers' cognitions, beliefs and knowledge results from an emerging image of the teacher as a "thoughtful professional". Studies of teacher knowledge and beliefs in general, and those of outstanding teachers in particular, primarily done at the pre-college level, provide reliable evidence that teachers' thought processes, pedagogical knowledge and beliefs substantially affect their classroom behavior (Clark & Peterson, 1986; Fennema & Franke, 1992; Peterson, 1988; Thompson, 1992). Effective instruction requires a wide knowledge base, including the following main categories: general pedagogical knowledge (knowledge of, and skill in, the use of teaching methods and pedagogical strategies that are not subject-specific); knowledge of learners (knowledge of student characteristics, theories of learning, and motivation), knowledge of contexts; knowledge of pedagogical aims, goals and purposes; and curricular knowledge (knowledge of curricular materials to teach particular topics and ideas) (Gudmundsdottir, 1987; Shulman, 1986; Shulman, 1987).

Studies of teacher thinking, beliefs and knowledge at the higher education level dealt primarily with teachers' planning of the course and lesson (e.g., Stark & Lowther, 1990), their reflection on their work (McAlpine & Weston, 1996), their approaches to teaching (e.g., Kember, 1997), and the categories of knowledge that influence their classroom teaching (Rahilly & Saroyan, 1997). But how do university professors develop this thinking and knowledge when they have not received any systematic preparation for their teaching role? Mainly, they acquire their skills through trial-and-error, reflection on feedback from students and by using self-evaluation. To a much lesser extent, they learn from having observed their own teachers while they were students (Hativa, 1997). This

unplanned and non-systematic process whereby they gain knowledge of effective teaching strategies may lead to fragmented knowledge and to unfounded beliefs about what makes instruction effective (Hativa, 1998).

What do we know about the thinking and knowledge about teaching particularly of outstanding teachers? Many studies at the precollege level examined this question by comparing expert/veteran teachers with novice teachers. These studies provide considerable evidence that expert teachers differ from their colleagues, and particularly from novice teachers, in the complexity and sophistication of their thought about teaching; in their cognitive schemata and pedagogical reasoning skills (Borko & Livingston, 1989); in their decision making (Westerman, 1991); and in their teaching-related knowledge (Gudmundsdottir & Shulman, 1987). Expert teachers integrate the different categories and forms of knowledge in ways that allow them to optimally structure the physical, social, and intellectual environment of their classrooms (ibid).

Some similar evidence is found at the college level. At this level, outstanding teachers were selected either solely on the basis of high student ratings, or on their having being awarded for excellent instruction. Various studies have called them "exemplary teachers", or "master teachers", or "expert teachers"; here we will refer to the latter name. Expert university teachers were found to prefer a deep approach to teaching that is incongruent with students' more common surface approach (Andrews, Garrison, & Magnusson, 1996). As compared with novice teachers they were revealed to have more content-relevant, cognition-relevant, and context-relevant thinking about teaching (Sato & et al., 1993). As compared with other teachers they show to have more complex and flexible concepts of teaching effectiveness, to hold more developed concepts of self-efficacy, and to use a wider range of criteria for self-evaluation (Dunkin, 1995; Dunkin & Precians, 1992).

The experts seemed to have more extensive and deeper repertoires of thought about teaching effectiveness. Typically, they were able to draw upon almost twice as many strategies for enhancing their students' learning and they were able to elaborate upon those strategies…they were more strongly of the belief that they played significant roles in influencing their students' learning. They were also significantly more confident that they possessed the teaching skills necessary to give effect to their potential (Dunkin, 1995).

However, Dunkin's study did not elaborate on the teaching techniques and strategies these expert lecturers were familiar with, nor did it examine which strategies they actually used in class. We have found no other studies at the college level that examined beliefs and knowledge of expert teachers regarding particularly the use of effective teaching strategies—those classroom behaviors that help students learn. Learning of these beliefs and knowledge is important because of their possible impact on teaching effectiveness.

Classroom Characteristics and Behaviors of Expert Teachers

At the precollege level, exemplary or expert teachers were found to differ from novice teachers in several ways: they presented multiple points of view and a wide perspective; they showed more active, sensitive, and deliberative involvement in a situation; their problem-framing strategy in a context was different (Sato & et al., 1993),.. as well as the their assessment of students' nonverbal behavior was more accurate (Ropo, 1987; Stader, Colyer, & Berliner, 1990), and their responses to this behavior in terms of instructional interventions was more successful (Ropo, 1987).

At the college level, these teachers were found to be highly organized, plan carefully their lessons, set unambiguous goals, and have high expectations of their students. They express positive regard for their students, promote student participation, provide students with regular feedback regarding their progress in the course and make specific remediation recommendations, and assume a major responsibility for student outcomes. They make course content relevant to students by relating it to their experiences, giving examples, and connecting course goals to the real-world expectations and experiences of their students (Horan, 1991). They treat students as individuals in the classroom, involve them in the learning process, encourage them; use a variety of teaching techniques to add interest; challenge them intellectually; and create a positive classroom environment (Hilgemann & Blodget, 1991). Expert teachers enjoy teaching, show enthusiasm for the subject, have excellent command of the language and good delivery, inject humor, and introduce elements of theatrical performance. They make an earnest attempt to promote students' learning and actively involve them through questions and discussions (Kelly & Kelly, 1982). More generally, expert teachers show, across studies done in a variety of methods, to offer presentations in clear, organized and interesting ways and they communicate positive regard to, and motivate students (Lowman, 1996). In sum, expert university teachers are well prepared and organized, present the material clearly, stimulate students' interest, engagement and motivation in studying the material through their enthusiasm /expressiveness, have positive rapport with students, show high expectations of them, and maintain a positive classroom environment.

These findings are supported by general research on teaching effectiveness. A review of correlational studies on effective college teaching (Feldman, 1989) found that among the 22 main teaching characteristics examined, "Clarity and understandableness" and "Teacher preparation and organization" are the most important for teachers and students. Next in importance were "Stimulation of interest", "Motivation of students to reach high standards", "Encouragement of discussion and openness to others' opinions", and "Elocutionary skills". Interestingly, this review indicates that students and faculty mostly

agree on what effective teaching characteristics are. Centra (Centra, 1996, P. 55) finds even a wider scope of agreement: "Colleagues, administrators, students, and alumni have all identified similar general characteristics of what effective teachers do." Studies done with other research methods support and broaden the findings of corrrelational research. A review of observational studies on effective classroom teaching behaviors (Murray, 1997) found enthusiasm/expressiveness, clarity of explanation, and rapport/interaction to be the main effective teaching characteristics. A review of experimental studies (ibid) suggests that classroom teaching behaviors in the enthusiasm and clarity domains appear to be causal antecedents (rather than mere correlates) of various instructional outcome measures.

Most behaviors identified for exemplary teachers--clarity, organization, assuming responsibility for student outcomes, adding interest; challenging students intellectually; showing enthusiasm, and creating a positive classroom environment are regarded as "high-inference" teacher behaviors because their evaluation (measured by students' or observers' ratings) requires making an indirect, high-level inference. To compare, "low-inference" teaching behaviors are those of which occurrence in the classroom situation can be measured or counted relatively more directly. For example from the list above, the frequency during a lesson of "Injecting humor" can be counted and thus it is a low-inference teaching behavior. The identification and evaluation of low-inference teacher behaviors when measured by students' or observers' ratings shows to be objective and accurate (Murray, 1997). We refer below by the term "teaching strategies" to low-inference classroom teaching behaviors and techniques.

As seen from the summary of literature above, studies of classroom behavior of expert teachers do not provide good information regarding what strategies do these teachers use—do they all use the same strategies to achieve their excellence? If not, what is the interplay between the variety of possible strategies? Are there strategies used more frequently then others? Is there any core of strategies that are critical and indispensable for achieving effective teaching? There is some related research literature that examined low inference behaviors but for the general university teacher population rather than for expert teachers, and each for a single high-inference effective teaching dimension rather than for all main dimensions. That literature has identified low-inference teaching behaviors that promote clarity in presentation e.g., (Hines, 1981; Hines, Cruickshank, & Kennedy, 1985; Murray, 1983) and interesting/engaging presentation, e.g., through teacher enthusiasm and expressiveness (Murray, 1985).

This study will try to answer the above questions related to effective strategies used by expert teachers, in the limited context of several case studies.

Relationships Between Teachers Thinking and Knowledge, and Classroom Practice

As shown above, studies at the precollege level suggest that teachers' thinking, pedagogical knowledge and beliefs substantially affect their classroom behavior. However, these studies found inconsistent relationships between teachers' thinking and knowledge regarding teaching and students, and their observed practice. This inconsistency suggests that teachers' thinking and knowledge are not related in a simple causal way to their instructional practices but rather that these relationships are complex, with many factors influencing teacher work, such as the social context in which teaching takes place, including the values, beliefs, and expectations of peers, academic administrators, and students (Thompson, 1992).

For the university level, we were not able to find studies that examined the congruence between teachers' thinking and knowledge and their observed practice. We were interested particularly in teacher thinking and knowledge regarding effective teaching strategies because proper use of these strategies may lead to effective instruction. We were also interested to study particularly expert teachers because we expected, on the basis of the literature above, that their thinking and knowledge about teaching are more developed that those of other teachers and their performance on the high- and low-inference dimensions of effective teaching is better than that of their peers.

Aims of the Study

The main aim was to identify the thinking and knowledge of expert university teachers regarding effective teaching strategies, the frequency they use these strategies, and the relations of their thinking and knowledge to their classroom practice. Thus, the research questions, all related to the expert instructors in this study, were:

1. What are their thinking and knowledge about effective teaching dimensions and strategies?
2. What effective teaching strategies do they actually use in class?
3. What are the relationships between their thinking and knowledge about effective teaching strategies, and their actual use of these strategies?

Method

To study teacher thinking and knowledge we used qualitative methods. The data was gathered in a major university in Israel, during the second semester of the 1997-98 academic year.

The instructors studied. We selected four expert instructors--two from each of two different

departments—Hebrew literature and psychology. These departments were selected because of the undergraduate degree of two of the researchers in this study that were respectively in these two academic areas. The underlying assumption was that in order to analyze teaching in a particular subject area one has to understand the culture of teaching and the subject matter involved. In each department we listed all instructors who were rated by their students high on teaching large undergraduate courses (at least 50 students), during the three years preceding the study. Then we selected from that list all instructors who were scheduled to teach a large undergraduate course in the semester of the study. We randomly selected from that final list (of three and four professors, respectively) two instructors per department, and secured their consent to participate in the study. During the fourteen-week semester, each course met for three academic hours per week.

Instructor A, in his late 30's, had been teaching for 10 years in the literature department. His elective course, attended by 55 students, dealt with satire in the theatre. Instructor B, a woman in her early 50's, taught in the department of literature for over 20 years. Her course, attended by 127 students, dealt with travel stories in Hebrew literature. Instructor C from the department of psychology was a woman in her early 40's. She joined the department four years earlier after serving for five years as a faculty member in an Australian university. Her course dealt with psychological testing, was required for students majoring in psychology, and 125 students were registered for it. Instructor D was a man in his late 50's, a veteran in the psychology department. He had an international reputation as participated in trials of terrorists worldwide, is frequently invited to participate in TV debates on terrorism, and has taught courses on this topic also in American universities. His course on terrorism and political violence was elective and was attended by 110 students from the psychology and other departments.

Instructional unit of study. Before the beginning of the course each instructor selected, out of the course curriculum, a self-contained unit of instruction that lasted from three to four consecutive class meetings.

Instruments

To achieve triangulation of the findings, we used several data sources, as follows.

Instructors' interviews. Each instructor was interviewed twice. Each interview was tape-recorded and transcribed:

- A pre-course semi-structured interview, which took place a few days before the beginning of the semester. It dealt with all questions of the study and more questions were added during the interview, building on the responses of the instructor.
- A post-unit open interview, which took place several days after completion of the instructional unit selected for study. The professor was asked to reflect on his/her teaching, on achieving the goals in instruction of that unit, and on problems or unexpected events encountered while teaching.

Students' interviews. Ten students in each course under study were randomly selected for an interview about the instructor's classroom behavior.

Videotaped classes. The first lesson of the semester and all lessons related to the instructional unit selected for study were fully videotaped.

Effective-Teaching questionnaire. At the end of the last lesson of the instructional unit, a specially designed questionnaire was administered to all students in class. The questionnaire form asked to evaluate the four main dimensions of effective teaching, as identified in the literature presented above: lesson organization, clarity and interest/ engagement, and pleasant classroom environment. We included in the questionnaire four additional high-inference items: a global item of "Teacher overall performance", and three items found in the literature reviewed above, to be important components of effective teaching, and which are often included in instructor rating forms: "Preparedness for lesson", "Intellectual challenge and promoting self thinking", and "Effective use of class time". In addition, we included in the questionnaire also at least four low-inference components for each of these high-inference variables. The components of clarity were taken from the questionnaire used in Hativa's (Hativa, 1998) study and the ones related to the other high-inference dimensions were drawn from Murray (Murray, 1985) and Marsh (Marsh, 1987). Altogether, the questionnaire consisted of 36 Likert-type items, as well as two open questions asking about strong and weak aspects in instruction.

The questionnaire was pilot tested in two courses, one in each-- literature and psychology, different from those participating in this study. Participants were altogether 81 students, and the results of both courses were combined. Coefficients of internal consistency (Cronbach's alpha) were computed. The contribution of each item to its content-wise respective scale was examined and two items whose scale reliability had a detrimental effect were removed—one from the "organization" scale, and the other from the "interesting" scale. The scale of "classroom environment" failed to yield homogeneous clusters and therefore its four items were also removed. Thus, the final questionnaire form included 30 items of which eight described high inference behaviors and 22 presented

classroom strategies. The reliability of the sub-scales was found to be: organization (5 items) .59, clarity (13 items) .69, and interest (4 items) .72.

Materials distributed to students by the instructor. For each course, its syllabus, other materials distributed to the students by the instructor, and the test forms were gathered.

Data Analysis and Results

All interviews and videotaped lessons were transcribed and content analyzed and the written answers to the open questions were also content analyzed. The categories in content analysis were developed throughout the analysis to represent the issues of this study. The initial categories were based on the low-inference items of the questionnaire but in the course of analysis, some of these categories were omitted and others that emerged from the data were added. The coding of low-inference teaching behaviors from videotape were generally found to show high levels of inter-rater reliability, as already found by Murray (Murray, 1997). The students' numerical ratings were statistically analyzed for means and standard deviations.

Results

First Question: What Are the Expert Teachers' Thinking and Knowledge About Effective Teaching Strategies?

The answer to this question is based on the analysis of the pre- and post instructor interviews in which they were asked to describe their thinking and knowledge about dimensions of effective teaching and about effective teaching strategies, and to name those strategies that they used in class. The instructors were then asked specifically what strategies they used to make their lessons organized, clear, interesting, and to induce a positive climate in class. Then they were specifically asked about their use of certain strategies, taken from our list. Table 1 compares three sources that identify the level of use of these strategies: instructors' interviews, classroom videotapes, and students' ratings. Strategies that appeared only in a single source were omitted from the table to enable comparison of at least two sources. The first four columns on the left presents those strategies the teachers said they used in class.

Insert Table 1 and Figure 1 About Here

The following are the summary for each category of strategies. The instructors' more interesting elaboration on some of these strategies and on some additional issues that they raised during their interviews are presented in Figure 1.

Lesson organization. Only Instructor A knows and uses the well-known lesson organization techniques of three-part division, outlining, dividing into topics and subtopics, and summarizing. Instructor B explicitly declares herself to be disorganized, and the remaining two instructors mention only a few organization techniques. Interestingly, two instructors (B and C) take the topic--the satire/story/test--as a unit of organization rather than the lesson (see elaboration in Figure 1).

Lesson clarity. All four instructors recognize the importance of presenting questions during the lesson to check for students' understanding, and the need of giving good examples and illustrations. Three instructors mention the need to link the examples to students' prior knowledge or experience, and three of them (though not the same three) simplify their explanations. All other strategies are mentioned by two instructors at most.

Making a lesson interesting/engaging

All four instructors say they provide motivation to study the material and use teaching aids, although two of them do not use technological aids. All four also introduce variety into the lesson—through changing teaching methods, using teaching aids, inviting guest speakers, and more. Three of the four mention enthusiastic and dynamic presentation, challenging students' thinking, using humor, and activating students during the lesson.

Classroom climate. All instructors are very much aware of the need to create a pleasant classroom climate, which is conducive to learning. They all exhibit care and respect for students. Three instructors provide encouraging feedback and make themselves very approachable to students.

Second Question: What strategies do the expert instructors actually use in class?

The answer is based on the analysis of both the videotaped classes, and students' point of view (expressed by the mean of their numerical ratings, their interviews, and their written comments on the questionnaires). We start with combined evidence from the classroom tapes and students' ratings.

Classroom videotapes as a source for evaluating the actual use of effective strategies.

Table 1 (middle four columns) presents the mean evaluation by the two judges of the strategies--low-inference behaviors--of all instructors as analyzed from the videotaped

lessons. Two types of items are presented—those that require judges' ratings on a Likert scale (from 1= *strongly disagree* through 5 *strongly agree*), e.g., "Speaks intelligibly"; and those that require frequency count, e.g., "Gives good examples and illustrations". To prepare a single system of evaluation, the judges worked out a Likert scale for the frequently of each item. For example, on the latter item, Instructor A gave on average six examples per lesson, and this was rated "4" by the judges, i.e., "high" rating whereas the other three instructors gave on average between 18 and 26 examples during a lesson, which judges rated "5", i.e., "very high". Thus, both types of items are presented on a Likert scale from "1" marking a "very low" or "strongly disagree" through "5" representing "very high" or "strongly agree" measure. Figure 2 provides additional descriptions from the videotaped classes of some of the strategies the four teachers use in class.

Insert Figure 2 About Here

Students' ratings as a source for evaluating the actual use of effective strategies, and the high-inference teaching dimensions.

Table 2 presents the means and standard deviations of students' ratings of all four instructors on the questionnaire items.

Insert Table 2 About Here

A rule of thumb (Hativa, 1995) suggests to roughly interpret the mean ratings on a scale from 1 to 5 as follows: (a) below 2.9—very low; (b) 3.0-3.4 low; (c) 3.5-3.9 medium; (d) 4.0-4.4 as high; and (e) 4.5-5.0 very high. Table 2 indicates that all instructors are rated either high (d) or (mostly) very high (e) on the first six high-inference items. That is, all are perceived by their students as extremely well prepared, inducing exceedingly pleasant classroom climate, and being outstandingly clear, interesting and organized. One of them (Instructor C) does not use class time effectively enough, and two of them (Instructors A and C) do not provide high enough intellectual challenge.

Strategies frequently used by all or most teachers

Rather then summarizing separately the results of each source—the videotapes and student ratings, we define here as "highly used" only those strategies rated high by both sources, except of strategies not included in the questionnaire form given to the students either because they were omitted in the analysis for considerations of reliability, or they

were added to the list, following the tape-analysis, after the questionnaire form was finalized. To simplify the integration and comparison of the two sources, we have added to Table 1 (four rightist columns) the ratings of Table 2, substituting the numerical ranges by their letter representatives (thus converted into qualitative measures).

Strategies that are highly used by all teachers

In this section we refer to strategies as being "highly used" when they are rated by both sources--judges of the videotaped lessons and the students' ratings—as being located on one of the upper three levels (3, 4 or 5; c, d or e, in Table 1). By "very highly used" we refer to strategies of the upper two levels (4 or 5, d or e).

There are no organization strategies that are very highly used, except of linking the lesson to the previous lesson, for which we have only one source of evidence. Strategies highly used by all four instructors are: linking each lesson to the overall framework of the course, and dividing the lesson or the topic into subtopics or theses. Regarding clarity strategies, instructors use very highly simplification of their explanations, giving good examples and illustrations to the material, not making errors in presentation, speaking distinctly and clearly[1], and repeating and elaborating points that are difficult (a single source). Additional strategies which are highly used are: encouraging students to ask questions when they do not understand (a single source), answering students' questions well, and emphasizing important points. On the category of making the presentation interesting/engaging, no strategy shows to be highly used as based on both sources, probably because Instructor A is rated low by students on all four items, which is very unlike his ratings by the judges. However, if we rely only on the ratings of classroom videotapes, then motivating to study the material, presenting thinking challenges, introducing variety to the lesson, and activating students during the lesson are very highly used by all instructors, and showing enthusiastic/dynamic presentation and providing philosophical or historical background are highly used. On the basis of the videotaped lessons, all teachers appear to maintain a very pleasant classroom climate: they strongly demonstrate care for students and their learning, behave respectfully towards them, provide encouraging feedback and are very accessible to them. Three of the instructors use humor in class.

In sum, regarding strategies that are very highly used, there are only four that are supported by both sources, all belonging to the category of clarity: simplifying

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[1] This strategy is included in the "very high used" category in spite of the single c because six of the eight ratings are at the top—5 or e.

explanations, giving good examples and illustrations to the material, not making errors in presentation, and speaking distinctly and clearly. Additional strategies that show to be very highly used on the basis of the videotaped lessons, and for which we do not have student ratings' evidence, are: linking the lesson to the previous one, repeating and elaborating on difficult points, presenting thinking challenges, introducing variety, and the four strategies that promote positive classroom climate and rapport with students.

Strategies that are used low by at least one teacher

Of special interest are also those teaching strategies that had been identified as contributing to effective instruction and that show in this study to be used low by at least one of the instructors. This low use suggests that these strategies are not a necessary condition for excellent teaching. We refer here as "of low use" to strategies rated at the two lowest levels: either 2 or 1, or b or a, and this is supported by both sources for at least one instructor. Strategies of low use here are: outlining and summarizing the lesson, writing (legibly) on the board or on transparencies, and providing intuitive meaning to explanations. Additional strategies that show to be of low use on the basis of the videotaped lessons, and for which we do not have student ratings' evidence, are: marking the move from one topic to the other, using teaching aids, presenting contributions from own professional or life experiences, integrating material from other domains, and using humor.

Differences among instructors in use of effective classroom strategies

Tables 1 and 2 indicate that each of the four instructors achieves his/her high effectiveness in different ways, and each emerges to have his/her own strengths and weaknesses. All of them are very high on classroom climate so that we will not mention this category in this section.

High-inference behaviors. Table 2 shows that the range in ratings on organization, for the four instructors, is .71 (4.72-4.01), and for clarity, interest, classroom environment, and intellectual challenge it is, respectively, .34, .70, .59, .65. Thus, the gap among ratings on clarity is substantially smaller than on all other dimensions, suggesting that all teachers exhibit a similar level of clarity. Instructor A particularly excels in lesson preparation and is rated high by students on almost all other high-inference items, except intellectual challenge on which he is rated medium-high. Instructor B is rated in the very high range on all high-inference teaching behaviors, except on intellectual challenge on which she is rated high. Instructor C is rated significantly higher than of all other instructors on lesson organization and on pleasant classroom climate. She is also rated the highest on clarity, though in this she does not differ much from the others. On the other

hand, she is rated the lowest on her lesson interest/ engagement, intellectual challenge, and effective use of class time. Instructor D is rated the highest of all four instructors on overall performance, lesson preparedness, making the lesson interesting, and providing intellectual challenge, but is rated the lowest on lesson organization. In sum, Instructor B is relatively low on intellectual challenge, Instructor C excels in organization and classroom environment but has some problems with interest and intellectual challenge, and Instructor D excels in interest and intellectual challenge but is relatively low on organization

Low-inference behaviors.

Source: The ratings of classroom videotapes. Table 1 reveals large differences among the instructors in level of use of the different strategies. Rather than discussing each strategy separately, we refer here to the mean ratings of each instructor on strategies under the main dimensions of effective teaching. Table 1 indicates that while the mean ratings on lesson clarity is very similar for all instructors (range of 4.2-3.8=.4), they largely differ in mean ratings on organization and interest (respectively 1.7 and 1.1). Instructors A and C are rated high on organization whereas Instructors B and D are rated low. On the other hand, these latter instructors are rated high on lesson interest while Instructors A and C are rated medium or low on this item.

Source: The students' ratings of instructors. Table 2 reveals a large variety among instructors in level of use of classroom strategies. The mean ratings per instructor of strategies belonging to each main dimension suggest again no substantial differences on clarity (range: 4.35-3.81=.54) and much larger differences on organization and interest (respectively 1.15 and 1.33). The means support also the particular excellence of Instructor C in organization and of Instructors B and D in making the lesson interesting/engaging.

To conclude, although all four teachers are rated high on the main dimensions of effective teaching—they are well organized, clear and interesting, and establish a very pleasant learning climate, they differ as regards the level at which they exhibit these effective teaching dimensions, particularly those of organization and interest, and they perform well on the high-inference dimensions by using some common- and some different low-inference strategies.

An additional source for evaluating the differences among the four teachers in their classroom use of effective strategies is presented in Table 3. This table summarizes the frequency of students' positive comments, separately for those written as an answer to the open question on the questionnaire: "What do you like in this teacher's instruction?" and for those identified from the analysis of the transcriptions of students' interviews.

Insert Table 3 About Here

Assuming that the larger the frequency of positive comments, the larger is the frequency at which the teacher used strategies that belong to that high-inference behavior. Table 3 supports the previous notion that Instructors A and C excel particularly in lesson organization whereas Instructors B and D do so in their interesting presentations.

Third Question: What are the relationships between instructors' thinking and knowledge about effective teaching strategies, and their classroom use of these strategies?

A comparison of results of teachers' interviews with those of the videotaped lessons (Table 1) reveals a sound number of strategies that expert teachers actually use at a high level (rated as either 4 or 5), while they do not mention them in their interviews in spite of the prompts they receive. This is particularly the case for strategies in the organization and clarity domains in which teachers failed to recognize a sound proportion of strategies that they actually used (6 out of 14 occurrences--43%, and 19 out of 37 occurrences--and 51%, respectively). For example, in her interview, Instructor B declared herself to be disorganized and said she did not let students ask direct questions, only if they submitted them in writing. However, her class videotapes show that she does enable students to ask questions during the lesson, and that her organization was felt through many connections that she made to the general framework of the course and the previous lesson, and through spiral advancement in the material, and concentration around central theses which gave a sense of continuity and coherence in the topic presentation. A comparison of results of teachers' interviews with those of the students' ratings produce similar results.

On the other hand, in some cases (two in the organization category, four in the clarity category and two in the interesting/engaging category) the instructors mention using strategies that either one or both sources—the students and the judges of their videotaped lessons--evaluate as of very little use, if at all. For example, Instructor A thinks he summarizes the lesson at its end whereas the judges and students do not rate him high on this strategy. And the same thing is true for Instructors B and D who believe that they present sufficient questions to check students' understanding.

Differences Between the Two Departments.

Two teachers per department is too small a number to establish disciplinary differences. The following is a trial to qualitatively identify differences of this type. In

Table 1, there is a single item that clearly differentiates between the two departments—writing on the board or using transparencies. Both judges and students rated the two psychologists as medium and very high, respectively, on this item, whereas they rated both literature teachers very low. These ratings suggest that literature teachers use transparencies or writing on the board substantially less than psychology faculty. Other than this item, the judges' ratings do not yield any clear difference between the two groups of teachers. The students' ratings, however, suggest a few additional differences. Students observe that the psychologists present lesson outline at the beginning, whereas this is not found for literature instructors, and the psychologists present questions to check understanding, and answer students' questions somewhat more or better than do the literature people. One interesting out-of-class behavior which is special to the two literature teachers is going out with the students to see a play.

Summary and Discussion

Studies at the pre-college level provide reliable evidence that teachers' thinking and knowledge about teaching substantially affect their classroom behavior, and that expert teachers exhibit thinking and knowledge that are more complex and sophisticated than do other teachers. Studies at the college level of exemplary teachers and of teaching effectiveness show high agreement on several high-inference dimensions of effective teaching, e.g., organization, clarity, and interest/engagement/enthusiasm. However, the knowledge these studies produce about classroom low-inference behaviors--teaching strategies/techniques— is meager and fragmented. In addition, these studies do not connect the low-inference behaviors they identify to either the main dimensions of effective teaching or to teacher thinking and knowledge. This article integrates four case studies of exemplary university instructors to learn of low-inference behaviors of effective teaching: to identify the frequency of their use, and their relations to teacher thinking and knowledge and to the main dimensions of effective teaching.

First Question: What are Exemplary Teachers' Thinking and Knowledge About Effective Teaching Dimensions and Strategies?

As presented in the introduction, most studies on the thinking and knowledge of expert teachers compared these teachers to other teachers, particularly to novice teachers. Because the present study did not include this type of comparison, all we can say is that our participants show to know and report on a sound number of effective teaching strategies. They probably know of many more strategies than novice university teachers. However,

they are unaware of a sound number of important strategies, including some of those they use in class. We observed a gap between their knowledge of teaching strategies that lead to lesson organization and clarity, and those making a lesson interesting/engaging and creating a positive classroom climate. We found that they know only little about the former as compared with their knowledge of the latter.

Second Question: What Strategies Do the Expert Instructors Actually Use in Class?

In regard to high-inference classroom behavior of university expert teachers, all our instructors show about the same level of clarity (high, but not very high) and very high level of pleasant classroom climate. However, two instructors excel in course and lesson organization while the level of interest and engagement in their lesson is in the medium range, whereas the other two excel in making their lesson interesting and engaging but are low or even very low on use of strategies for lesson organization. Thus, our results support only partially the literature reviewed above suggesting that expert teachers are highly organized, their presentations are interesting and clear, and they create a positive classroom climate.

Regarding low-inference classroom behaviors—effective teaching strategies—our instructors show to use different strategies, and to different extents, to achieve lesson organization, clarity, interest, etc. There are only a few strategies that are highly used by all teachers. The studies reviewed above relate to expert teachers the use of some strategies that our teachers show to only minimally use, if at all,, e.g., providing students with regular feedback regarding their progress in the course, and making specific remediation recommendations. On the other hand, our study agrees with the essential use by expert teachers of other strategies that were identified in those studies, e.g., the use of examples, excellent command of the language, and good delivery. The contribution of our study to the discussion of low-inference behaviors of expert teachers is the separation of analysis between high- and low-inference behaviors that it presents, and the more comprehensive and organized set of strategies it examines.

In addition, this study shows that a teacher can excel even without using some of the strategies regarded as most important for effective teaching, such as using teaching aids, writing on the board, outlining and summarizing the lesson, or using humor. Thus, we may perceive these strategies as sufficient but not necessary for exemplary teaching.

We may conclude that there is no single way, no particular comprehensive set of classroom strategies, that is necessary for becoming an expert teacher. Each instructor has his/her own profile of strategies and dimensions that he/she highly use and that contribute to teaching effectiveness. Indeed, there is a small set of strategies that seems to be essential

for effective teaching, e.g., the use of good/proper examples and illustrations, simplifying explanations, speaking intelligibly, and avoiding making errors. However, beyond this small essential set, each teacher achieves his/her excellence in a different way, using different strategies. The interesting findings is that an instructor can perform medium or even low on the high-inference dimensions of organization or interest/engagement and still be perceived by students as an excellent teacher.

Lowman (Lowman, 1996) suggests a model of effective teaching that consists of only two high-inference dimensions: (a) offering presentations in clearly organized and interesting ways, and (b) relating to students in ways that communicate positive regard and motivate them to work hard to meet academic challenges. Thus, Lowman's first dimension combines our three dimensions of organization, clarity, and interest/engagement whereas his second dimension corresponds to our dimension of classroom environment. Lowman found that each of the exemplary teachers he had studied was at least moderately successful at the skills needed for one of the two dimensions and exceptionally skilled in the other. Only few instructors were exceptionally skilled in both dimensions. Our study has arrived at a similar conclusion as Lowman's, only we refer to four main dimensions rather than Loman's two dimensions, and also some of Lowman's teachers did not excel in his second dimension (positive relationships with students) whereas in our study, all four instructors did excel in creating a positive classroom environment. It is feasible that had we studied a larger number of exemplary teachers, as did Lowman, we may well have found some of them to be moderate or low on this dimension too. Thus, to generalize the findings of both studies, an expert teacher can still perform moderately or even low on one or two of the three main dimensions of effective teaching: organization, interest, and relationships with students (classroom environment). In regard to the fourth dimension, clarity, we do not have any evidence so far that an expert teacher can perform medium or low on this dimension. Thus, at this stage, until we get contrary evidence, we assume that being clear at a high level is a necessary condition for excellence in teaching.

Our findings suggest that each exemplary instructor exhibits a unique profile of level of performance on high- and low-inference effective teaching behaviors. In our study, we examined the performance of each instructor in a single course. One may question the stability of this profile across courses, that is, whether these instructors preserve the level of performance on the different teaching behaviors in other courses they teach. Marsh and Bailey (Marsh & Bailey, 1993) use the terms "level" and "shape" of teacher profile to distinguish respectively between mean ratings being high or low ("level"), and the relative rank order of ratings on the different teaching behaviors ("shape"). Hanges, Schneider, and Niles (Hanges, Schneider, & Niles, 1990) show impressive stability over time of

instructors' performance on the different dimensions, although some rating dimensions were found to be more stable than others. The stability was higher for the same instructors teaching the same course than for the same instructor teaching different courses, and was much higher for the instructor than for the course. The authors concluded that stability in ratings was related to faculty attributes rather than to those of courses taught. Marsh and Bailey (Marsh & Bailey, 1993) show that instructors have distinct profiles of strengths and weaknesses that are highly generalizable over time and across courses, taught at both graduate and undergraduate levels. Hativa & Raviv (Hativa & Raviv, 1996) found, for the whole population of instructors in two university departments, a very high degree of stability of instructor profile across time of measurement (same course in mid- or end-of semester, and in different years). Thus, there is a reasonable research evidence suggesting high consistency/stability for the profile "shape" of an instructor. Therefore, we expect that our exemplary teachers who show to use certain levels of high- and low-inference behaviors in the course we studied, to show similar behaviors in other courses they teach.

Third question: What are the Relationships Between Teachers' Thinking and Knowledge About Effective Teaching Strategies, and Their Actual Use of These Strategies?

A connection emerges here between teacher knowledge, thinking, and classroom behavior. For example, Instructor A, as shown in his interviews, believes that organization and a good student-teacher relationship impacts the effectiveness of teaching, and so he implements these ideas in his teaching. Hence his lectures are well organized, clear, and interesting. Instructor B believes that preparation before class, being clear and interesting, and having a good rapport with the students are important factors in effective teaching. Indeed, in her teaching she focused on clarity and on presenting the lesson in an interesting manner.

However, there is a sound number (about 50%) of strategies, which our teachers used a great deal, but which that they were neither aware of using. They did not even mention these strategies upon prompting during the interviews. On the other hand, in a few cases the instructors mentioned using strategies that they did not actually show in class, as judged by their videotaped lessons or by their students. These findings extend Thompson's (Thompson, 1992) findings of inconsistent relationships between teachers' knowledge and beliefs regarding teaching and their observed practice, to the university level.

Conclusions and Implications

The main result of this study is that exemplary teachers achieve effectiveness using a variety of strategies, as was ingeniously observed many years ago by Polya, the famous mathematician and mathematics educator:

> I can give you no rules [for effective teaching], for there are as many good ways of teaching as there are good teachers." (Polya, 1957, p. 37).

This study suggests, though, a few guidelines for excellence in university teaching: it is necessary to be highly clear, and in addition to excel in either one of two other dimensions: course and lesson organization, and making the lesson interesting/engaging. Strategies that seem to be necessary for teaching excellence are the use of proper examples and illustrations, simplifying explanations, emphasizing important points, avoiding making errors, and speaking intelligibly. The study also indicates that exemplary teachers' thinking and knowledge of effective teaching strategies are developed to a certain degree but far from fully so, and that there is a sound, but again far from perfect fit between these teachers' thinking and knowledge, and their classroom practice.

The results of this study contribute to our understanding of teaching effectiveness. They may serve instructional consultants who work with faculty members on improving their instruction, and can help more directly those faculty members who are working on improvement. The main idea is that an essential aspect in preparing faculty members to their teaching role is to familiarize them with a wide variety of teaching strategies and to help them understand how each of these contributes to the main dimensions of effective teaching: organization, clarity, etc. Having gained this basis, each teacher should select those strategies that fit his/her personality, skills, thinking and beliefs, subject matter, and the particular teaching context. When teachers reflect on their instruction, they should consider what strategies they have been using in class and how successful they have been in achieving organization, clarity, etc. We believe that even the highest rated teachers may improve by adding effective strategies to their repertoire of classroom behavior.

Limitations of the Study and Suggestions for Further Study

The small number of teachers involved is the main limitation although each case study took a huge amount of time and work thus enabling to investigate in depth the topics involved. Because of this limitation, our study is only an initial step in answering the questions posed. Additional case studies are needed to establish our results, using exemplary teachers from same and different departments. They should be examined by the same method, in order to identify the strategies that are essential/imperative for effective teaching and to further establish the interplay between teachers' thinking and knowledge

and their classroom practice, as well as that between the main dimensions of effective teaching and the strategies teachers use to achieve them.

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Table 1: Analysis of Classroom Videotapes and Instructor Interviews on Low- and Medium-Inference Effective Teaching Behaviors

Source:	Instructors' Interviews				Classroom Videotapes				Modified Students' Ratings (Table 2)			
Department	Litera ture		Psycho logy		Litera ture		Psychol ogy		Litera ture		Psycho logy	
Instructor	A	B	C	D	A	B	C	D	A	B	C	D
Strategies--low inference items												
Lesson Organization												
Links lesson to overall course framework	v		v		5	4	5	3	c	d	e	e
Links lesson to previous lesson	v			v	5	4	4	5				
Presents lesson outline at lesson beginning	v			v	4	1	4	3	a	a	d	d
Summarizes the lesson at end	v				3	1	2	2	b	d	b	a
Divides lesson/topic into parts/topics/theses	v		v		5	5	5	3	c	d	e	e
Marks moving from one topic to another	v				5	2	5	2				
Mean per instructor					4.5	2.8	4.3	3.0				
Lesson Clarity					**3.8**	**4.0**	**4.2**	**3.8**				
Simplifies explanations		v	v	v	5	5	5	4	d	d	e	d
Presents questions to check understanding	v	v	v	v	4	3	3	2	a	a	c	b
Encourages students' questions			v	v	5	3	5	5				
Answers well students' questions		v			3	4	5	5	c	c	e	e
Emphasizes important points	v		v		5	5	4	3	d	e	d	d
Writes (legibly) on board/transparencies					1	1	5	3	a	a	e	e
Provides intuitive meaning to explanations					2	5	3	4	b	d	c	d
Gives good examples/illustrations	v	v	v	v	4	5	5	5	c	e	e	e
Links to students' prior knowledge/experience	v	v		v	3	4	2	1	a	d	c	a
Repeats/elaborates difficult points	v	v			4	4	4	5				
Speaks intelligibly	v	v			5	4	4	5	d	d	d	e
Explains unfamiliar/difficult terms					4	4	5	3	b	d	e	d
Does not make errors/mistakes					5	5	5	5	e	e	e	e
					3.8	**4.0**	**4.2**	**3.8**				
Interesting/engaging Lesson												
Provides motivation to study	v	v	v	v	4	5	4	5	b	d	d	e
Presents enthusiastically/dynamically		v		v	3	5	3	5	b	e	d	e
Uses analogies, metaphors, anecdotes[1]	v	v		v	3	5	2	5	b	e	c	e
Provides philosophical/historical background				v	4	5	3	4	b	e	c	d
Presents thinking challenges	v		v	v	4	5	5	5				
Uses teaching/technological aids	v	v	v	v	5	2	5	3				
Introduces variety to lessons	v	v	v	v	5	4	4	5				
Refers to own life or professional experiences	v			v	2	5	2	5				
Integrates material from other domains	v	v			2	4	3	5				
Uses humor	v	v		v	5	5	2	5				
Activates students during the lesson	v		v	v	5	3	5	4				
Mean per instructor					**3.8**	**4.4**	**3.5**	**4.6**				
Classroom climate, rapport with students												
Exhibits care for students	v	v	v	v	5	5	5	5				
Behaves respectfully towards students	v	v	v	v	5	5	5	5				
Provides encouraging feedback to students	v		v	v	5	5	5	5				
Approachable to students	v		v	v	4	5	5	5				
Mean per instructor					4.8	5.0	5.0	5.0				

[1] Belongs also to the category of Clarity

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Table 2: Students' Ratings of their Instructors on the Effective-Teaching-Behaviors Questionnaire

Department	Literature		Psychology		
Instructor	A	B	C	D	Per item
Teaching behaviors/strategies	Mean (SD) n=34 (62%)	Mean (SD) n=100 (79%)	Mean (SD) n=81 (65%)	Mean (SD) n=73 (66%)	Mean (SD)
High-inference items					
Overall teaching performance	4.31 (0.64)	4.62 (0.94)	4.58 (0.56)	4.66 (0.51)	4.54
Overall lesson organization	4.26 (0.83)	4.41 (0.89)	4.72 (0.57)	4.01 (0.77)	4.35
Overall lesson clarity	4.24 (0.89)	4.53 (0.93)	4.60 (0.66)	4.53 (0.58)	4.48
Overall lesson was interesting	4.18 (0.80)	4.69 (0.85)	4.04 (0.76)	4.74 (0.47)	4.41
Induction of a pleasant classroom environment	4.29 (0.80)	4.66 (0.70)	4.88 (0.33)	4.53 (0.63)	4.59
Preparedness for lesson	4.64 (0.78)	4.72 (0.83)	4.77 (0.42)	4.85 (0.36)	4.75
Intellectual challenge & promoting self thinking	3.84 (1.05)	4.26 (0.93)	3.80 (0.82)	4.45 (0.71)	4.09
Effective use of class time	4.21 (0.84)	4.64 (0.75)	3.93 (0.87)	4.01 (0.82)	4.20
Low-inference items					
Lesson Organization					
Links to the overall course framework	3.73 (0.94)	4.45 (0.90)	4.54 (0.61)	3.86 (0.85)	4.15
Presents lesson outline at start	2.20 (1.19)	2.08 (1.30)	4.09 (0.72)	1.96 (0.77)	2.58
Summarizes the lesson at end	3.29 (0.97)	4.03 (1.13)	3.17 (1.04)	2.33 (0.83)	3.21
Divides material into topics	3.78 (1.07)	4.02 (1.13)	4.74 (0.47)	3.81 (0.88)	4.09
Mean per instructor	3.25	3.65	4.14	2.99	3.66
Lesson Clarity					
Explains things simply	4.00 (0.89)	4.26 (0.97)	4.58 (0.56)	4.33 (0.65)	4.29
Presents questions to check if students understand	2.48 (1.12)	2.41 (1.54)	3.99 (0.82)	3.48 (0.97)	3.09
Answers well students' questions	3.82 (1.03)	3.94 (1.18)	4.64 (0.63)	4.55 (0.65)	4.24
Emphasizes important points	4.06 (0.85)	4.63 (0.63)	4.21 (0.77)	4.22 (0.73)	4.28
Writes legibly on board/transparencies	2.07 (1.21)	2.18 (1.35)	4.62 (0.62)	3.52 (1.03)	3.10
Provides intuitive meaning to explanations	3.39 (1.06)	4.48 (0.81)	3.84 (1.00)	4.10 (0.80)	3.95
Gives good examples/ illustrations	3.78 (1.13)	4.60 (0.72)	4.72 (0.53)	4.60 (0.62)	4.43
Links explanations to students' prior knowledge /life experience	2.84 (1.04)	4.05 (1.15)	3.64 (0.97)	2.85 (0.84)	3.35
Speaks intelligibly	4.21 (1.15)	4.29 (1.27)	4.36 (0.92)	4.63 (0.51)	4.37
Explains unfamiliar terms	3.16 (1.37)	4.23 (0.93)	4.59 (0.64)	4.26 (0.71)	3.88
Does not make errors/mistakes	4.50 (0.89)	4.54 (1.07)	4.70 (0.51)	4.70 (0.52)	4.61
Mean per instructor	3.81	3.96	4.35	4.11	3.99
Interesting/Engaging Lesson					
Provides motivation to study	3.33 (1.29)	4.21 (0.87)	4.05 (0.75)	4.75 (0.49)	4.09
Enthusiastic presentation	3.32 (1.27)	4.87 (0.51)	4.20 (0.97)	4.63 (0.57)	4.26
Uses analogies, metaphors, anecdotes	3.23 (1.18)	4.68 (0.73)	3.90 (0.87)	4.74 (0.50)	4.14
Provides philosophical or historical background	3.19 (1.31)	4.51 (0.84)	3.80 (0.88)	4.26 (0.75)	3.94
Mean per instructor	3.27	4.57	3.99	4.60	4.11

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Table 3: Percent of Students who Expressed Positive Comments as Related to the Three Major Effective Teaching Characteristics or to their Low-Inference Components

Department	Literature		Psychology	
Instructor	A	B	C	D
Written comments in questionnaire[2]				
Lesson organization	62	24	66	8
Lesson clarity	45	48	58	51
Lesson is interesting	25	91	37	85
Comments in interviews[3]				
Lesson organization	77	21	80	38
Lesson clarity	51	52	67	81
Lesson is interesting	21	85	33	88

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[2] Percent of students out of all students per instructor who answered the questionnaire
[3] Percent of students out of all students per instructor who were interviewed

Figure 1: Instructors' Thinking and Knowledge on Effective Teaching Strategies, as Identified From Their Interviews

Lesson Organization

Instructor B opens each story by presenting some hypothesis, theory or axiom, and then she proves the hypothesis. The proof develops through analysis of the story and is based on all parts of the story. On the other hand, this hypothesis is the result of all the story details. Thus, there is a cyclic process- the argument builds on the details, but the details prove the argument. Maybe for this reason she defines herself as very disorganized. Instructor C also does not divide a lesson into opening, body, and conclusion but rather imposes this structure on the topic. "I start a topic, e.g., the Rohrschach test, with historical background on its development, then I describe the test with examples and illustrations, and then I let students experience some versions of the test for themselves. I end up by putting this test under the general framework of the category of tests it belongs to."

Lesson Clarity

Instructor A provides illustrations from the students' world and areas of interest-- politics, general literature, psychology, etc. He speaks slowly enough to make it comfortable to absorb what he says. Instructor B believes that language is the main tool of the lecturer and achieves her clarity by using distinct diction and rich language. However, to this she adds simplification and spiral repetition and enhancement of the ideas and she encourages students to suggest their own examples. She adapts her explanations to the three types of audiences present in her course (regular Israeli students, new immigrants who are non-fluent in Hebrew, and "golden age" retired students). For example, she assigns special reading material to those with insufficient command of the Hebrew language. Instructor C separates what is important from what is not, in order to weed out too many details that may obstruct understanding of the main points. Instructor D adapts his teaching style and level to students—checks for background knowledge necessary to learn the new material.

Making a lesson interesting/engaging

Instructor A believes in the need to select the material so that is interesting and engaging to the students. With this aim he presents entertaining excerpts from satires. He introduces variety to the lesson by using movies, videotapes and humorous anecdotes; inviting guest speakers, or even going out with the students to see a play. He assigns reading of interpretive or controversial articles for intellectual stimulation and for promoting knowledge in domains unfamiliar to students. He moves in front of the class and does not read from his notes. Instructor B believes that what makes a lesson interesting is a combination of the instructor's personality, method of teaching, and presentation of interesting/attractive topics. She strongly believes that attending class should give students some added value beyond what they can read by themselves. She enjoys teaching and communicates this to her students. She selects attractive topics, jokes a lot in her lessons, and combines the literature material with other domains such as history, social sciences,

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psychology, other cultures, etc. At times she uses maps, paintings, or picture books to illustrate points. Occasionally she even takes her students to a movie or a play that are relevant to the topics taught. Instructor C uses thinking challenges to increase curiosity and lead to interaction with students. If a student asks an interesting question which is relevant to the topic, she opens it for discussion, to hear students' opinions, stimulate their thinking, and activate them. She lets students experience personality testing by themselves by assigning them to take the test and then grade themselves, using a scale she provides them. She believes this motivates students because it personalizes the material and makes it more lively and interesting for them. She also uses transparencies to illustrate and demonstrate the different tests. Instructor D presents thinking challenges in the form of questions that increase curiosity and tension and intellectually activate students during the lesson. He promotes interactions with students, and encourages discussion and participation. He uses spontaneous humor, and shows enthusiasm in presentation. "I very much like the material I'm teaching—I live it all the time and I think that I communicate this enthusiasm to students—I hope I cause them also to get enthusiastic about it."

Classroom climate

Instructor A's attitude to students is very positive and patient, he exhibits willingness to listen and interact with them, communicates with them in and out of class, and prevents competition, which he perceives as damaging to classroom climate. Instructor B believes that her main characteristic as a teacher is friendliness towards students. She believes in teaching that is open and that does not induce any feelings of anxiety. She helps students who face difficulties, particularly when they do not know sufficient Hebrew to understand the lesson. She gives students the feeling that they have interesting things to study and that with a lot of work, time and patience, they will succeed. Instructor C exhibits care for and interest in the students and listens to them throughout the lesson. She talks with students as if she were one of them—they joke and laugh together. She makes herself very approachable to her students—to enable them ask questions, to talk to her either before or after the lesson, or to come to her office even outside the official office hours. Instructor D emphasizes the importance of presenting a variety of viewpoints rather than imposing his own. He believes that by this he promotes students' openness to others' opinions and pluralism. He avoids criticizing, being judgmental or insulting toward students because this behavior may create antagonism towards the instructor and "shuts their ears." He is very approachable to students and enables them to talk to him before or after class or during office hours.

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Figure 2: Instructors' Actual Performance of Effective Teaching Strategies, as Identified From Videotapes of Their Classes

Instructor A uses many strategies of lesson organization and clarity. In the first lesson of the course he drew a timeline chart and at the beginning of each lesson he marked on that chart where they were and connected the lesson to the previous lesson. All lessons have the same structure: they start with a short presentation of a satire, the reason why he has selected it, historical background, and then the main content. He builds the material from explicit categories and sub-categories and marks each move from one to another. He supports each explanation by at least one example and frequently uses the technique of rule-example-rule (first presenting some idea or thesis, then providing an example to support it, and then repeating the general rule). He poses questions to students to check their understanding, and repeats the explanation if he sees that they did not understand. He is not dynamic or enthusiastic in presentation and gains students' attention through the use of humorous video clips that demonstrate the points he makes, and through the use of spontaneous humor and dramatization. For example, rather than reading a poem, he sings it, or he acts excerpts of a play. He poses questions that stimulate students' thinking and their active participation in class discussion. He acts sympathetically toward students, and listens to them carefully and with interest.

Instructor B uses rich and fluent language, incorporating many anecdotes, metaphors, stories from her own life experiences, and examples from the students' world of reference and from literature they are already familiar with. She makes comparisons and distinctions to support her explanations, repeats points she thinks may be difficult and uses the rule-example-rule technique. She promotes students' intuition by presenting elements of the stories on the board to help them visualize and at times she refers to these drawings to indicate where they are in terms of discussing the theory. She uses a lot of spontaneous humor, mimics, gestures, and her most remarkable characteristic is her outstanding enthusiasm and dynamism in presentation. She provides historical and philosophical background to the topics, and often challenges students' thinking by posing intriguing questions to them. She also shows care and respect for students, covers for unclever questions, maintains good rapport with them throughout the lesson, and answers questions in a pleasant and encouraging way.

Instructor C distributed in the first lesson of the course a printed syllabus organizing the topics of the course into categories and sub-categories, and she then discussed the rationale and structure of the syllabus with them. She links the lesson topic to the overall course framework by often saying things like: "The fourth determinant is.. and I remind you that we are dealing now with intellectual aptitudes", or "don't lose sight of the whole picture--we are now in the category of emotional motives". She presents the lesson outline right at the start of the lesson, and clearly divides the lesson into topics and subtopics. She uses to mark moving from one part of the lesson to another saying "we have finished talking about… and now we'll talk about…" or "now I want to discuss…" Sometimes she marks the move by writing the headings of the new topic on the board. She brings many practical examples of personal testing. She checks

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students' understanding by asking if everything is clear from time to time. When she finishes her answer to a student's question, she asks if additional explanation is needed. She also excels in explaining, defining and elaborating on unfamiliar or complex notions and terms. She writes on the board extensively legibly and uses well-designed transparencies. To make her lessons engaging she presents questions that challenge students' thinking, and she actively involves students in the material so that they can experience some aspects of it for themselves. For example, when she teaches the Drawing Test (a personality test), she presents slides with drawings of children and adults and assigns students to analyze the drawings and present their conclusions to class. She also assigns students to take some of the tests during the lesson and then to score themselves on a scale that she provides them, and then they jointly discuss the test and its scoring. She creates a very pleasant and sympathetic classroom environment. She smiles a lot, jokes and laughs with the students, comes to class 5-10 minutes before the lesson starts and stays there after the lesson ends to talk with the students. She communicates to students that she cares about them and wants them to succeed. She encourages students through positive feedback, e.g.,: "Excellent question!", or "You have raised a very important point". She enables all students to ask questions and willingly and clearly answers them.

Instructor D shows very low use of strategies of organization, except for linking the lesson to the preceding one. Regarding clarity, he brings many relevant illustrations of political violence in the country and the world to support the points he makes, and exhibits superb linguistic skills: his sentences are short and simple, he uses simple familiar words, his speech is very articulate and fluent, his voice is pleasant to listen to, and he often pauses to enable students to think or to take notes. He encourages students' questions and answers them willingly and concisely.

He also uses many of the strategies that make a lesson engaging: he is very enthusiastic and dynamic and frequently gestures and facial expressions to support what he is saying, moves a lot in the classroom, and communicates high self confidence. His voice is well modulated and animated and he changes the rate and intonation of speech to emphasize important points. He often presents analogies, philosophical or historical notes, and relevant anecdotes, based usually on political or historical events. He uses humor extensively, in connection to the material taught. He responds spontaneously and with humor to non-teaching-related, unanticipated events. His illustrations and anecdotes are taken from daily life and he presents them in a very dramatic and lively manner, which catches students' attention. He poses thinking challenges that demand evaluation and judgement. When the time for thinking is over, the participants present and discuss their opinions. He often uses self-disclosure, describing interesting occurrences from his own life or professional experience.

He strongly displays all the strategies that are known to promote classroom climate: he is relaxed, flexible, talks with students in a very pleasant and polite manner, in open to criticism and encourages students to freely express their ideas. He generally encourages students' input, by praising students' questions or answers, and he maintains eye contact with the students throughout the lesson.

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